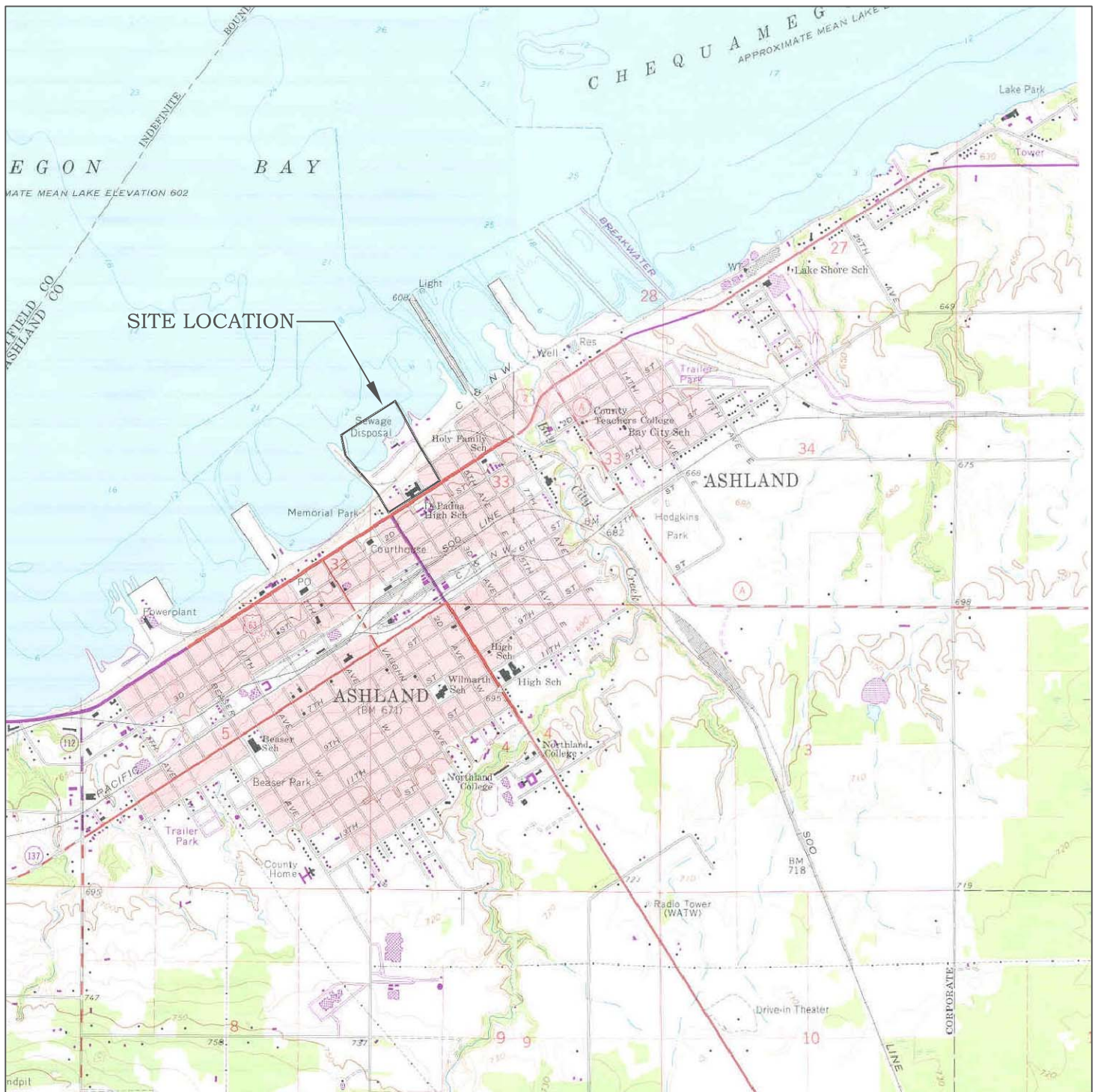


Figures



BASE MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, ASHLAND, WISCONSIN, DATED 1964, PHOTOREVISED 1975.



QUADRANGLE LOCATION



NORTH

0 1320 2640 5280

SCALE IN FEET

PROJECT:

ASHLAND/NSP LAKEFRONT SITE
ASHLAND, WISCONSIN

TITLE:

FIGURE 1
SITE LOCATION MAP

DRAWN BY: BRN

SCALE: 1" = 2640'

PROJ. NO. 25688375

CHECKED BY: DPT

DATE: 13.FEB.2004

SHEET: 1 OF 17

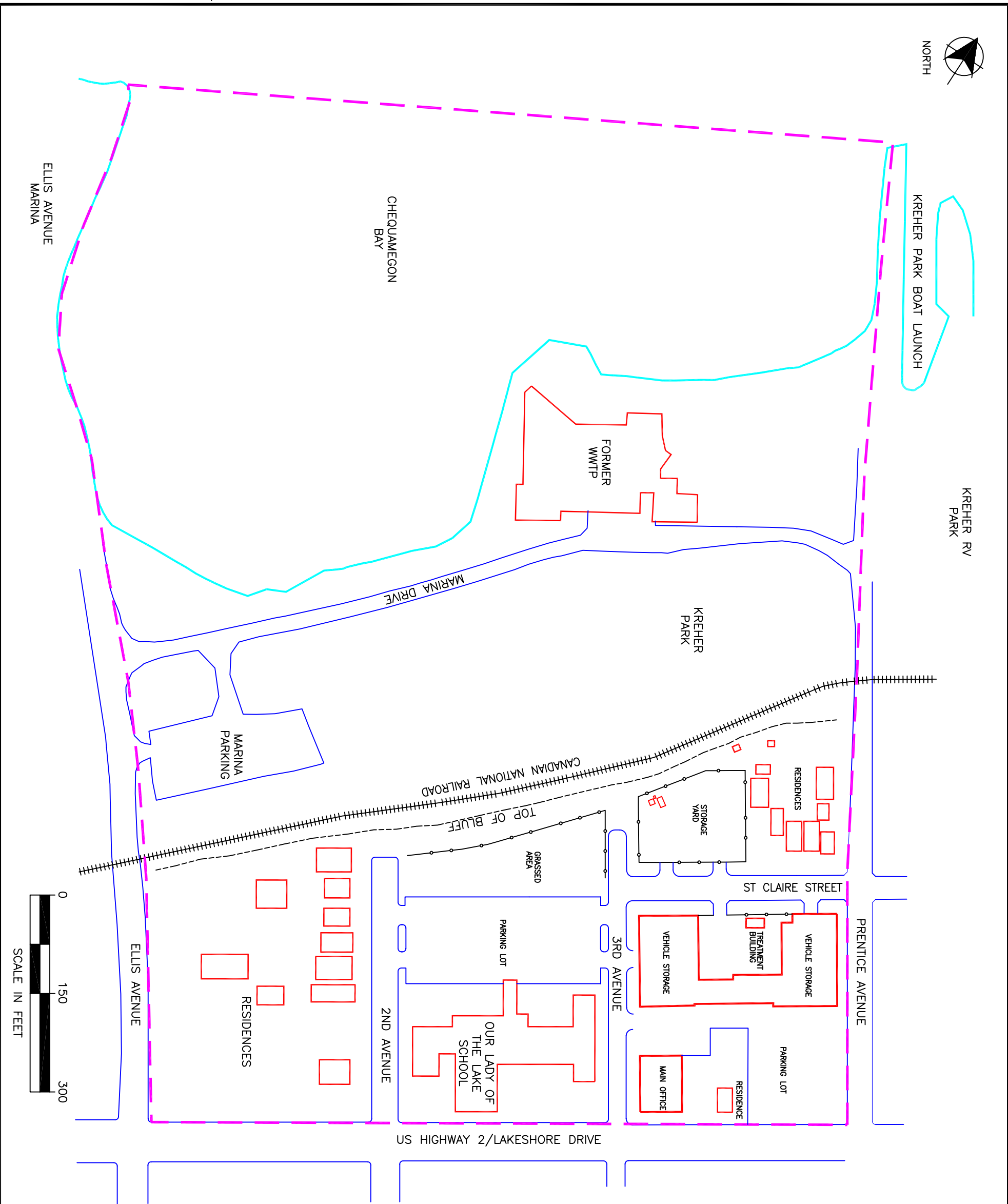
APPROVED BY: DPT

URS

10200 INNOVATION DRIVE, SUITE 500
MILWAUKEE, WISCONSIN 53226
414-831-4100



NORTH



LEGEND

BUILDINGS

FENCELINES

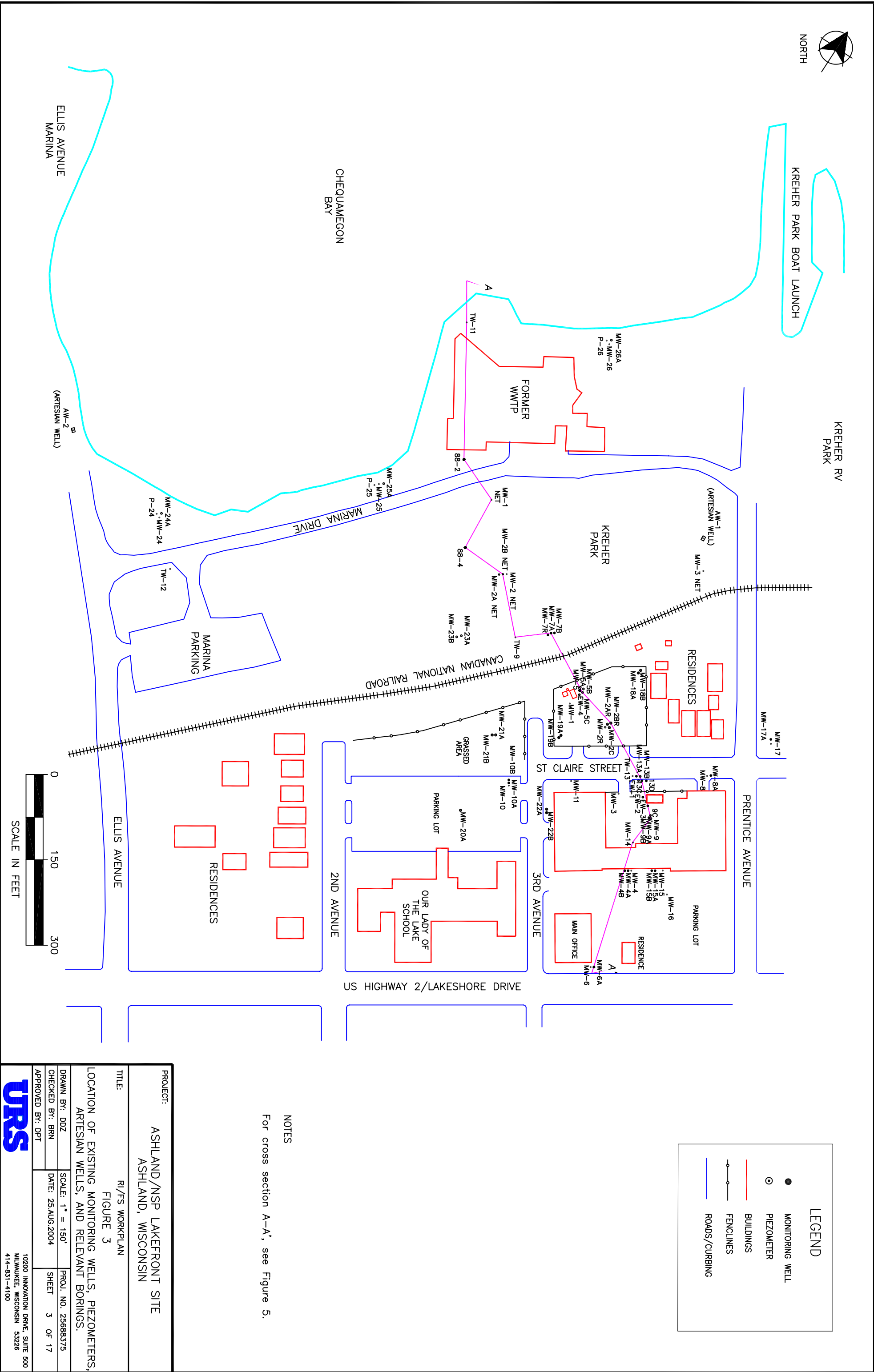
ROADS/CURBING

NPL SITE BOUNDARY

NOTE:
NPL SITE BOUNDARY CORRESPONDS TO DESCRIPTION IN THE PROPOSED AOC/SOW, DATED AUGUST 5, 2003 AND INCLUDES AFFECTED BAY SEDIMENTS, FORMER WWTB, KREHER PARK, AND XCEL ENERGY PROPERTY.

PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN			
TITLE: RI/FS WORKPLAN FIGURE 2 SITE MAP			
DRAWN BY: DDZ	SCALE: 1" = 150'	PROJ. NO. 25688375	
CHECKED BY: BRN	DATE: 26.AUG.2004	SHEET	2 OF 17
APPROVED BY: DPT			
10200 INNOVATION DRIVE, SUITE 500 MILWAUKEE, WISCONSIN 53226 414-831-4100			





KREHER PARK BOAT LAUNCH

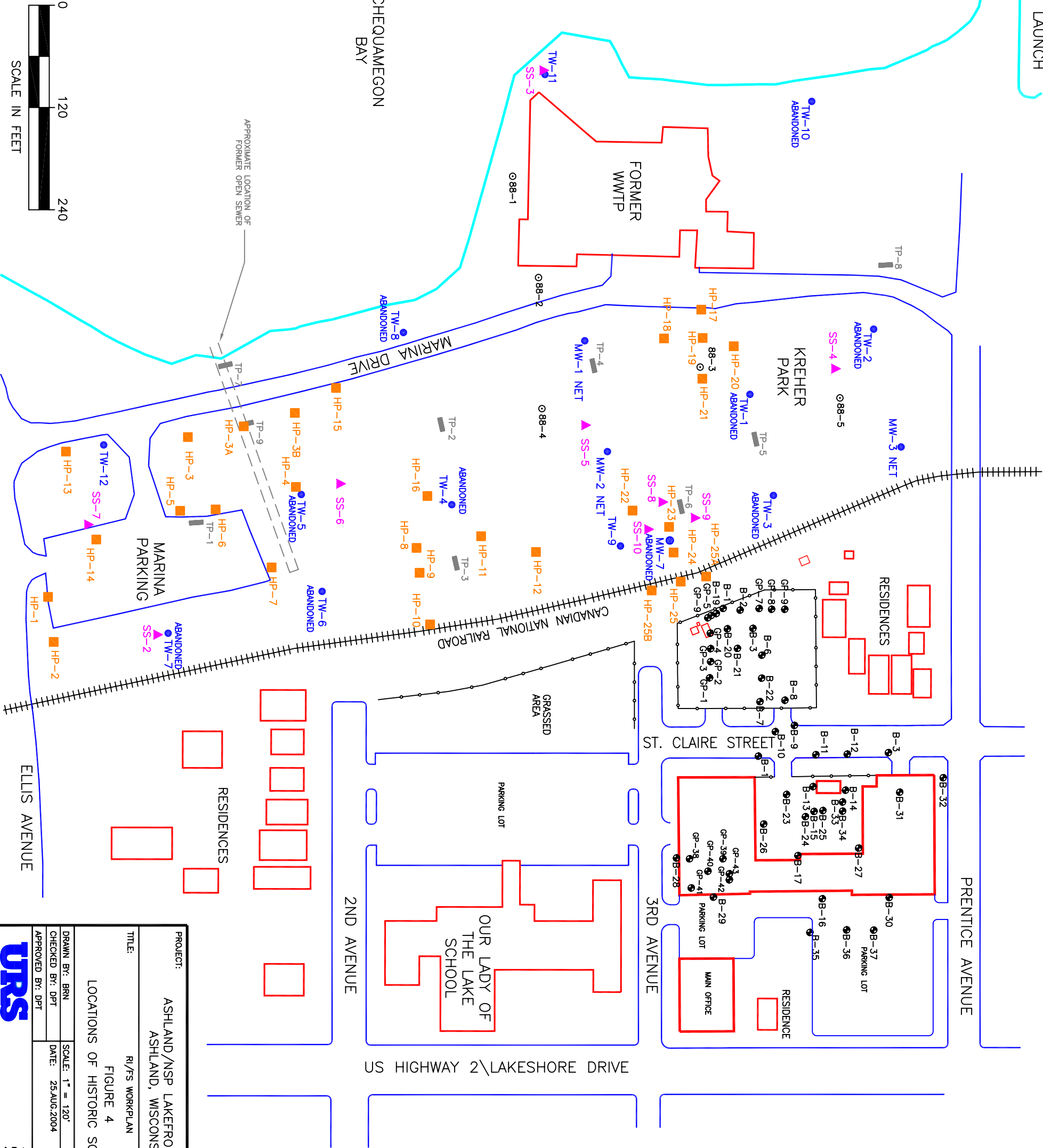


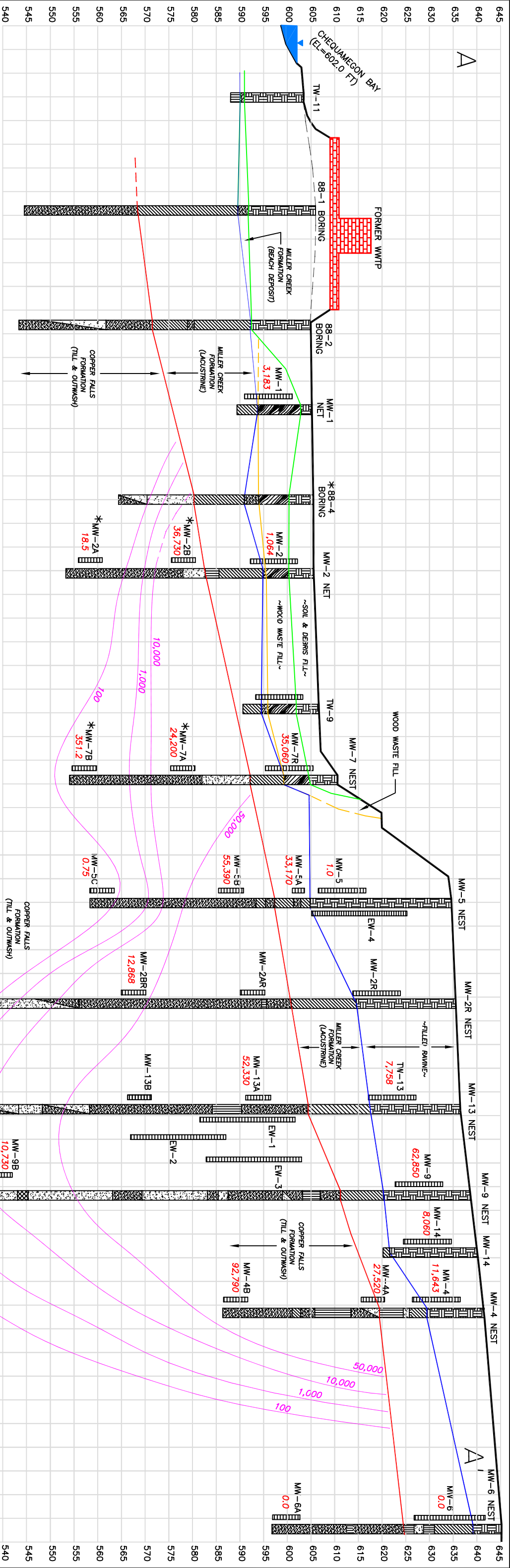
NORTH

LEGEND:

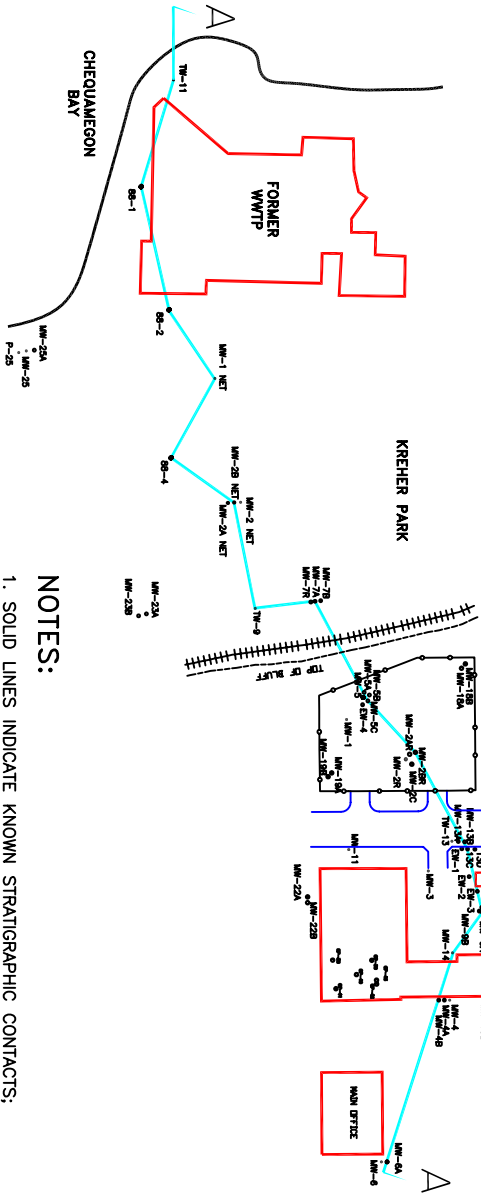
- GP-1 GEOPROBE BORING
- 88-4 SOIL BORING (NET)
- MW-1 MONITORING WELL
- TP-2 TEST PIT
- ▲ SS-3 SURFACE SOIL SAMPLES
- HP-5 HYDROPUNCH SAMPLES
- BUILDINGS
- FENCIBLES
- ROADS/CURBING

- NOTES:
1. BORINGS INCLUDE PRIMARY NET AND SEH BORINGS AND TEST PITS, AND ALL ACTIVE AND ABANDONED WELLS AT KREHER PARK; ADDITIONAL HISTORICAL SURFACE SOIL & GEOPROBE BORINGS MADE BY SEH AT KREHER PARK ARE INCLUDED ON GIS DIAGRAMMS IN APPENDIX B.
 2. IN JANUARY 1989, NET CONDUCTED A RECONNAISSANCE MAGNETOMETER SURVEY NEAR THE WWTP AS PART OF A PROPOSED EXPANSION TO THE WWTP.
 3. IN JULY 1994, SEH CONDUCTED ELECTROMAGNETIC (EM) AND MAGNETOMETER SURVEYS IN KREHER PARK. THE LOCATIONS OF EXPLORATORY TEST PITS EXCAVATED BY SEH WERE BASED ON THE INFORMATION REPORTED IN THESE SURVEYS.
 4. IN DECEMBER AND JANUARY 2001, MSA CONDUCTED GROUND-PENETRATING (GPR) SURVEYS IN THE KREHER RV PARK LOCATED EAST OF PRENTICE AVENUE.





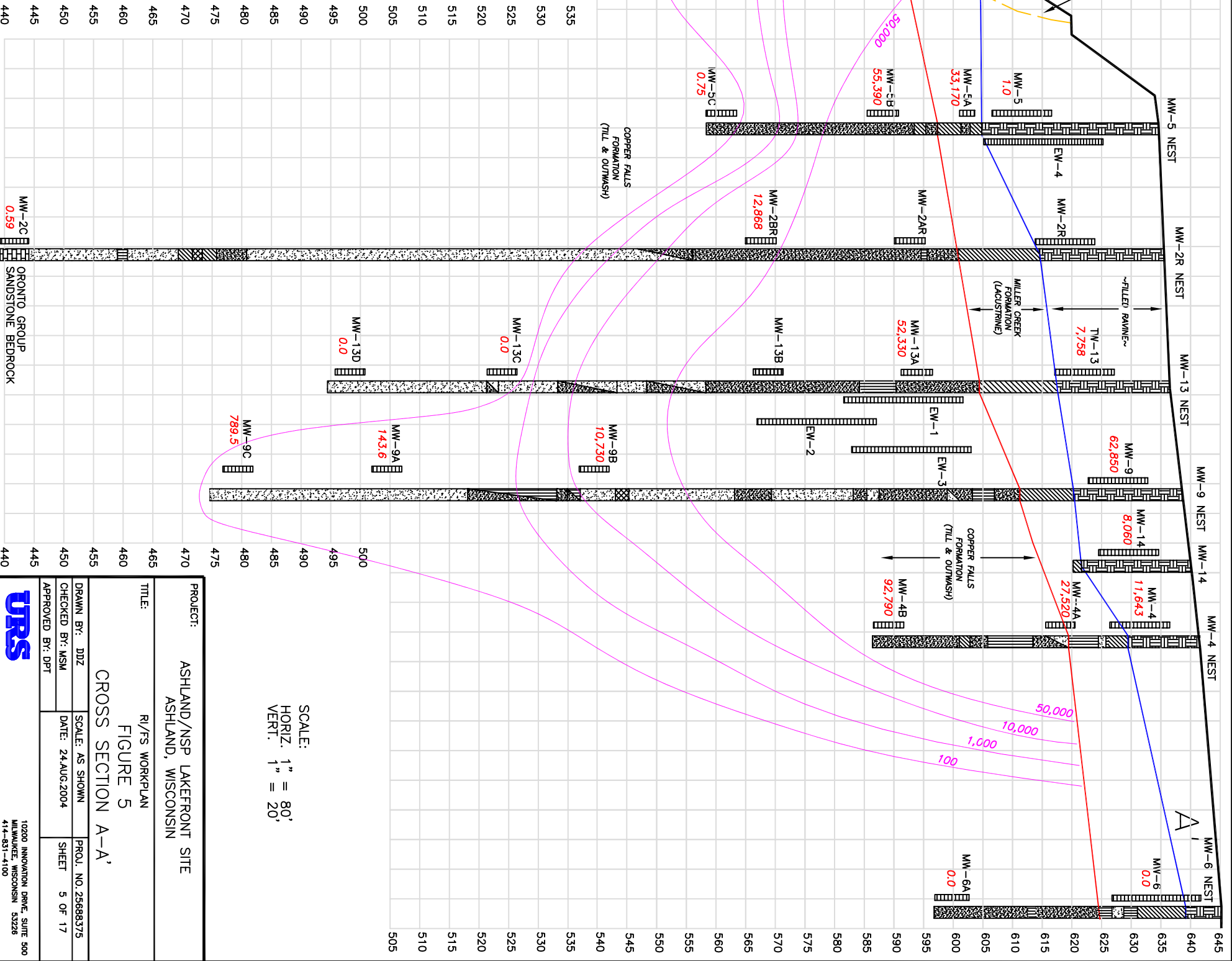
CROSS SECTION
LOCATION



NOTES:

1. SOLID LINES INDICATE KNOWN STRATIGRAPHIC CONTACTS; DASHED LINES REPRESENT INFERRED CONTACTS.
2. 88-1 THROUGH 88-5 SERIES OF SOIL BORINGS FOR ENVIRONMENTAL ASSESSMENT OF WASTEWATER TREATMENT PLANT SITE BY NET (JAN 1989).
3. TOTAL VOC CONCENTRATIONS (ug/L) ARE LISTED BELOW WELLS WHERE ANALYZED.
4. MW-2C WAS SAMPLED IN JUNE 2004 (TOTAL VOCs = 0.59 ug/L). SUSPECT DRILLING INTERFERENCE.
5. LAKE SUPERIOR SURFACE ELEVATION LONG TERM AVERAGE = 602.0 FEET MSL (SOURCE: US ARMY CORPS OF ENGINEERS LAKE SUPERIOR HYDROGRAPH, 1918-2002).

- FILL SOILS
- WOOD WASTE FILL
- CLAY (CL, CH)
- SILT (ML)
- SILTY SAND (SM)
- CLEAN SAND (SP)
- GRAVELLY INTERVALS (GP, GM, GC, SW)
- BEDROCK
- MONITORING WELL/PIEZOMETER SCREENED INTERVAL
- ARTESIAN FLOW ENCOUNTERED
- TOTAL VOC CONCENTRATION (ug/L) SAMPLED IN JUNE 2004 (DASHED WHERE INFERRED).
- BASE OF MILLER CREEK FORMATION



SCALE:
HORIZ. 1" = 80'
VERT. 1" = 20'

PROJECT:	ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN		
TITLE:	R/I/S WORKPLAN FIGURE 5 CROSS SECTION A-A'		
DRAWN BY:	DDZ	SCALE: AS SHOWN	PROJ. NO. 25686375
CHECKED BY:	MSM	DATE: 24.AUG.2004	SHEET 5 OF 17
APPROVED BY:	DPT		



10200 INNOVATION DRIVE, SUITE 500
MILWAUKEE, WISCONSIN 53226
414-831-4100



NORTH

KREHER PARK BOAT LAUNCH

KREHER RV
PARK

CHEQUAMEGON
BAY

FORMER
WWT
P

KREHER
PARK

SEEP AREA

RESIDENCES

ST CLAI
RE STREET

PRENTICE AVENUE

VEHICLE STORAGE

VEHICLE STORAGE

PARKING LOT

PARKING LOT

MAIN OFFICE

RESIDENTIAL AREA

OUR LADY OF
THE LAKE
SCHOOL

PARKING LOT

GRASS
ED
AREA

CANADIAN NATIONAL RAILROAD

TOP OF BLUFF

MARINA DRIVE

MARINA
PARKING

RESIDENCES

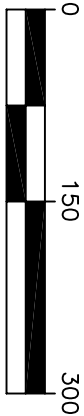
2ND AVENUE

3RD AVENUE

US HIGHWAY 2\LAKESHORE DRIVE

ELLIS AVENUE

MARINA



SCALE IN FEET

LEGEND

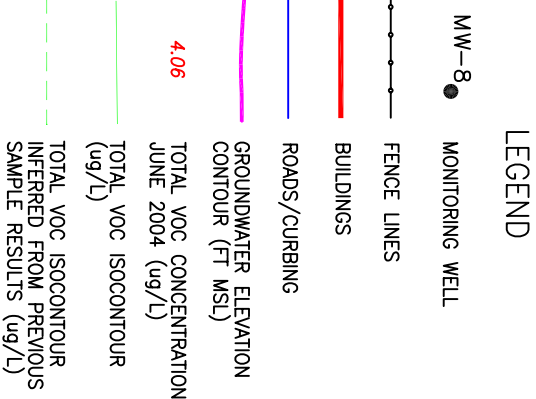
- BUILDINGS
- FENCE LINES
- ROADS/CURBING
- FILLED RAVINE
- UPPER COPPER FALLS
- KREHER PARK
- CHEQUAMEGON BAY SEDIMENTS

NOTE:

THE COPPER FALLS AQUIFER IS KNOWN TO BE MORE REGIONALLY EXTENSIVE; BOUNDARIES SHOWN REPRESENT THE PROBABLE AFFECTED AREAS.

NPL SITE BOUNDARY INCLUDES AFFECTED BAY SEDIMENTS, FORMER WWT, KREHER PARK, AND XCEL ENERGY PROPERTY.

PROJECT:			
ASHLAND/NSP LAKEFRONT SITE			
ASHLAND, WISCONSIN			
TITLE:			
RI/FS WORKPLAN			
FIGURE 6			
AFFECTED AREAS			
DRAWN BY: BRN	SCALE: 1" = 150'	PROJ. NO. 25688375	
CHECKED BY: MSM	DATE: 25.AUG.2004	SHEET	6 OF 17
APPROVED BY: DPT			
URS			
1020 INNOVATION DRIVE, SUITE 500			
MILWAUKEE, WISCONSIN 53226			
414-831-4100			





NORTH

KREHER PARK BOAT LAUNCH

KREHER RV PARK

CHEQUAMEGON BAY

ELLIS AVENUE MARINA

AW-2
(ARTESIAN WELL)

MW-244
P-24

FORMER
WWTP

MW-26A
P-26

MW-254
P-25

AW-1
(ARTESIAN WELL)

MW-78
MW-7A

MW-28 NET
MW-2A NET

MW-23A
MW-23B

CANADIAN NATIONAL RAILROAD

MARINA
PARKING

RESIDENCES

ELLIS AVENUE

OUR LADY OF
THE LAKE
SCHOOL

PARKING LOT

RESIDENCES

2ND AVENUE

US HIGHWAY 2/LAKESHORE DRIVE

3RD AVENUE


MAIN OFFICE

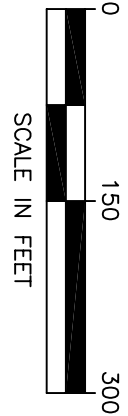
PARKING LOT

PRENTICE AVENUE

- LEGEND
- (615.04) POTENTIOMETRIC SURFACE (FT MSL)
 - GROUNDWATER CONTOUR (FT MSL)
(DASHED WHERE INFERRED)
 - TOTAL VOC ISOCONTOUR (ug/L)
 - BUILDINGS
 - FENCILINES
 - ROADS/CURBING

NOTE: TOTAL VOC CONCENTRATIONS
AND GROUNDWATER ELEVATIONS BASED
ON JUNE 2004 SAMPLING EVENT.

PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN			
TITLE: RI/FS WORKPLAN FIGURE 8 GROUNDWATER CONTAMINATION IN UPPER COPPER FALLS AQUIFER			
DRAWN BY: BRN	SCALE: 1" = 75'	PROJ. NO. 25688375	
CHECKED BY: DDZ	DATE: 26.AUG.2004	SHEET 8 OF 17	
APPROVED BY: DPT			
 <div>10200 INNOVATION DRIVE, SUITE 500 MILWAUKEE, WISCONSIN 53226 414-831-4100</div>			



SCALE IN FEET



NORTH

KREHER PARK BOAT LAUNCH

KREHER RV PARK

CHEQUAMECON BAY

ELLIS AVENUE MARINA

MARINA DRIVE

CANADIAN NATIONAL RAILROAD

ST CLAIRE STREET

PRENTICE AVENUE

2ND AVENUE

3RD AVENUE

US HIGHWAY 2\LAKE SHORE DRIVE

FORMER WWT

KREHER PARK

RESIDENCES

MARINA PARKING

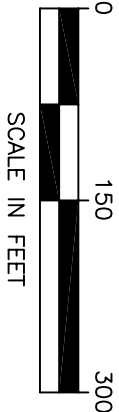
OUR LADY OF THE LAKE SCHOOL

MAIN OFFICE

RESIDENCES

GRASSED AREA

PARKING LOT



LEGEND

- FENCE LINES
- BUILDINGS
- ROADS/CURBING
- MONITORING WELL TOTAL BTEX CONCENTRATION (ug/L)
- TOTAL BTEX ISOCONCENTRATION COUNTOUR (ug/L)

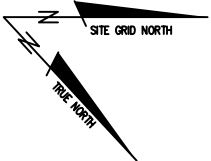
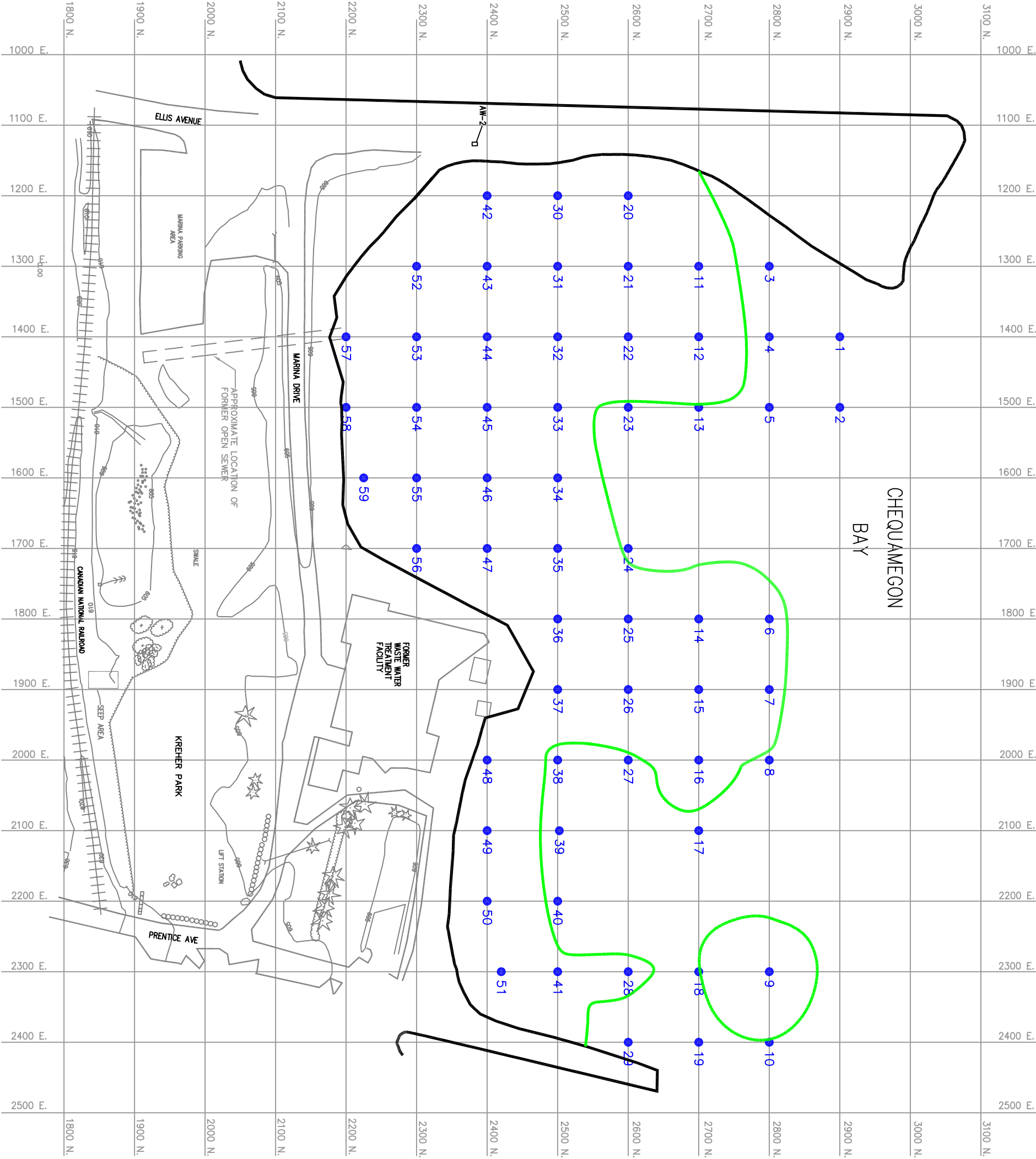
NOTE:

NPL SITE BOUNDARY INCLUDES AFFECTED BAY SEDIMENTS, FORMER WWT, KREHER PARK, AND XCEL ENERGY PROPERTY.

TOTAL BTEX ISOCONTOURS FROM FIGURE 3, REVIEW COMMENTS, SEH DRAFT REMEDIATION ACTION OPTIONS FEASIBILITY STUDY, A URS/DAMES & MOORE REPORT DATED APRIL 1996.

GROUNDWATER SAMPLES COLLECTED FROM SEH TEST WELLS AND EXISTING MONITORING WELLS NORTH OF RAILROAD IN SEPTEMBER 1994. RAVINE WELL SAMPLES COLLECTED IN MAY 1995. SAMPLE FROM MW-5 WAS COLLECTED IN OCTOBER 1995.

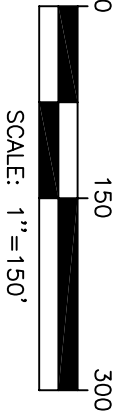
PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN			
TITLE: RI/FS WORKPLAN			
FIGURE 9			
HISTORIC GROUNDWATER CONTAMINATION IN KREHER PARK			
DRAWN BY: BRN	SCALE: 1" = 150'	PROJ. NO. 25688375	
CHECKED BY: DDZ	DATE: 25.AUG.2004	SHEET 9 OF 17	
APPROVED BY: DPT			
URS			
10200 INNOVATION DRIVE, SUITE 500 MILWAUKEE, WISCONSIN 53226 414-831-4100			



- 10

SEDIMENT SAMPLING LOCATION
(URS CORPORATION, MARCH 2001)
- EXTENT OF CONTAMINATION
- RAILROAD TRACKS
- TOPOGRAPHIC CONTOUR (5' INTERVAL)
- CULVERT
- PINE TREE
- TREE
- SHRUB / HEDGE
- MARSH

NOTE:
BASE MAP ON KREHER PARK FROM SEH DRAFT
FEASIBILITY STUDY, DATED FEBRUARY 1996.



PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN			
TITLE: RI/FS WORKPLAN		FIGURE 10	
		EXTENT OF CONTAMINATION	
		IN BAY SEDIMENTS	
DRAWN BY: DDZ	SCALE: 1"=150'	PROJ. NO. 2568375	
CHECKED BY: DPT	DATE: 03.FEB.2004	SHEET	10 OF 17
APPROVED BY: DPT			
10200 INNOVATION DRIVE, SUITE 500 MILWAUKEE, WISCONSIN 53226 414-831-4100			

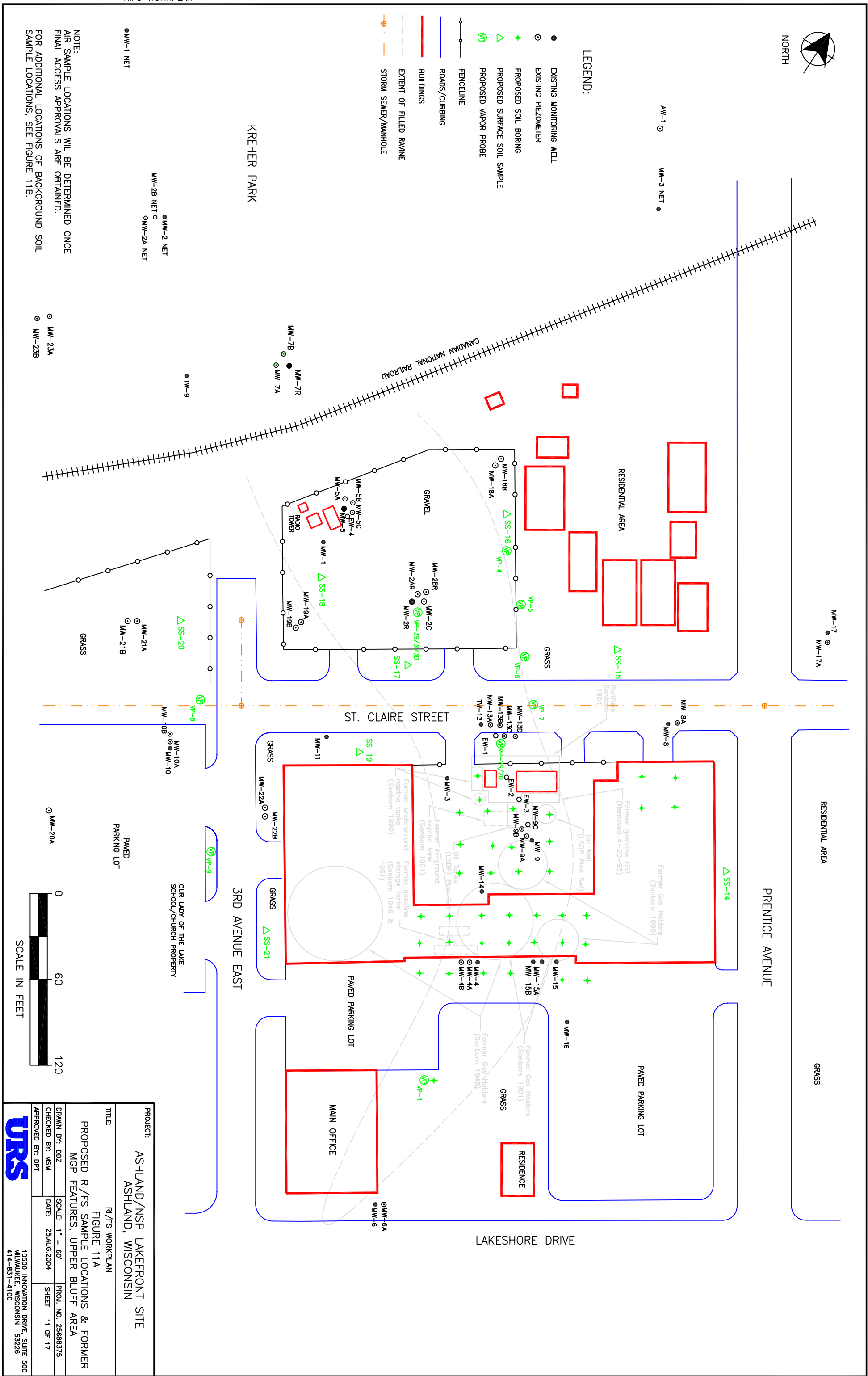




NORTH

LEGEND:

- EXISTING MONITORING WELL
- EXISTING PIEZOMETER
- ✦ PROPOSED SOIL BORING
- △ PROPOSED SURFACE SOIL SAMPLE
- ⊕ PROPOSED VAPOR PROBE
- FENCELINE
- ROADS/CURBING
- BUILDINGS
- - - EXTENT OF FILLED RAVINE
- STORM SEWER/MANHOLE





NORTH

KREHER PARK BOAT LAUNCH

KREHER RV
PARK

CHEQUAMEGON
BAY

FORMER
WWTP

KREHER
PARK

MARINA DRIVE

CANADIAN NATIONAL RAILROAD

TOP OF BLUFF

GRASSED
AREA

ST CLARE STREET

PRENTICE AVENUE

SS-25 ▲

VEHICLE STORAGE

TREATMENT
BUILDING

VEHICLE STORAGE

RESIDENCE

MAIN OFFICE

SS-24 ▲

3RD AVENUE

PARKING LOT

OUR LADY OF
THE LAKE
SCHOOL

2ND AVENUE

SS-23 ▲

RESIDENCES

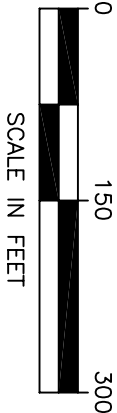
ELLIS AVENUE

MARINA
PARKING

SS-22 ▲

ELLIS AVENUE

MARINA



SCALE IN FEET

LEGEND:

- ▲ PROPOSED BACKGROUND SURFACE SOIL SAMPLE
- PROPOSED SUBSURFACE BACKGROUND SOIL BORING
- FENCELINE
- ROADS/CURBING
- BUILDINGS

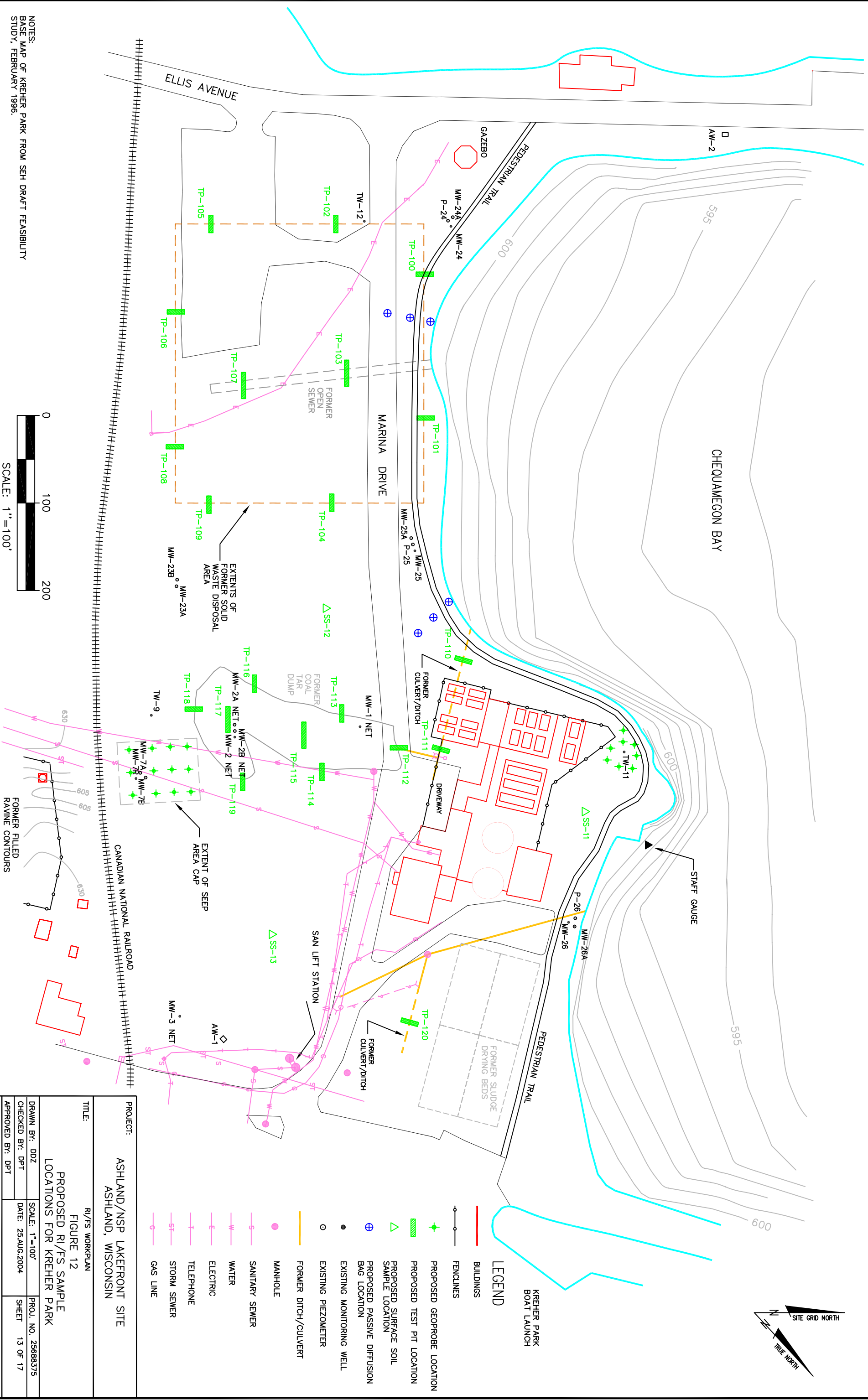
PROJECT: ASHLAND/NSP LAKEFRONT SITE
ASHLAND, WISCONSIN

TITLE: RI/FS WORKPLAN
FIGURE 11B
PROPOSED RI/FS BACKGROUND SOIL SAMPLE
LOCATIONS, UPPER BLUFF AREA

DRAWN BY: DDZ	SCALE: 1" = 150'	PROJ. NO. 25688375
CHECKED BY: BRN	DATE: 08.OCT.2004	SHEET 12 OF 17
APPROVED BY: DPT		

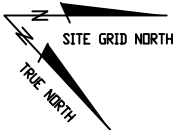


10500 INNOVATION DRIVE, SUITE 500
MILWAUKEE, WISCONSIN 53226
414-831-4100



NOTES:
BASE MAP OF KREHER PARK FROM SEH DRAFT FEASIBILITY STUDY, FEBRUARY 1996.
FORMER POTW DETAILS FROM GREELEY & HANSEN RECORD DRAWINGS, MARCH 1951.

PROJECT:		
ASHLAND/NSP LAKEFRONT SITE		
ASHLAND, WISCONSIN		
TITLE:		
R/FS WORKPLAN		
FIGURE 12		
PROPOSED R/FS SAMPLE		
LOCATIONS FOR KREHER PARK		
DRAWN BY: DDZ	SCALE: 1"=100'	PROJ. NO. 256985375
CHECKED BY: DPT	DATE: 25.AUG.2004	SHEET 13 OF 17
APPROVED BY: DPT		



CHEQUAMEGON
BAY

CANADIAN
NATIONAL
DRE DOCK

CLARKSON
DOCK

REISS
COAL
DOCK

MARINA

MARINA DRIVE

KREHER
PARK

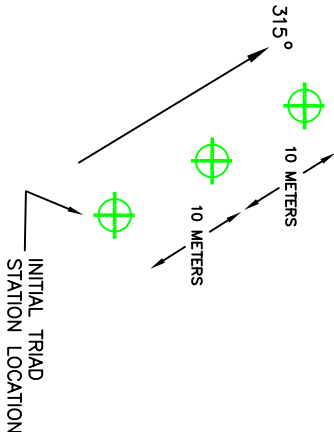
KREHER
RV PARK

PRENTICE AVENUE

ELLIS AVENUE

US HIGHWAY 2

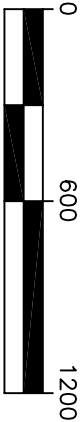
DETAIL OF TRIAD STATION LOCATION -
RECONNAISSANCE SAMPLING



LEGEND

- HISTORIC SEDIMENT
SAMPLE LOCATIONS
- ⊕ CANDIDATE TRIAD SAMPLE LOCATION
(R* DENOTES REFERENCE STATION)
- ⊗ SUPPLEMENTAL SEDIMENT SAMPLE
LOCATIONS

NOTES:
BASE MAP FROM SEH DRAFT FEASIBILITY
STUDY, DATED FEBRUARY 1996.

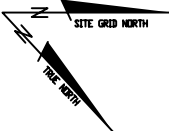
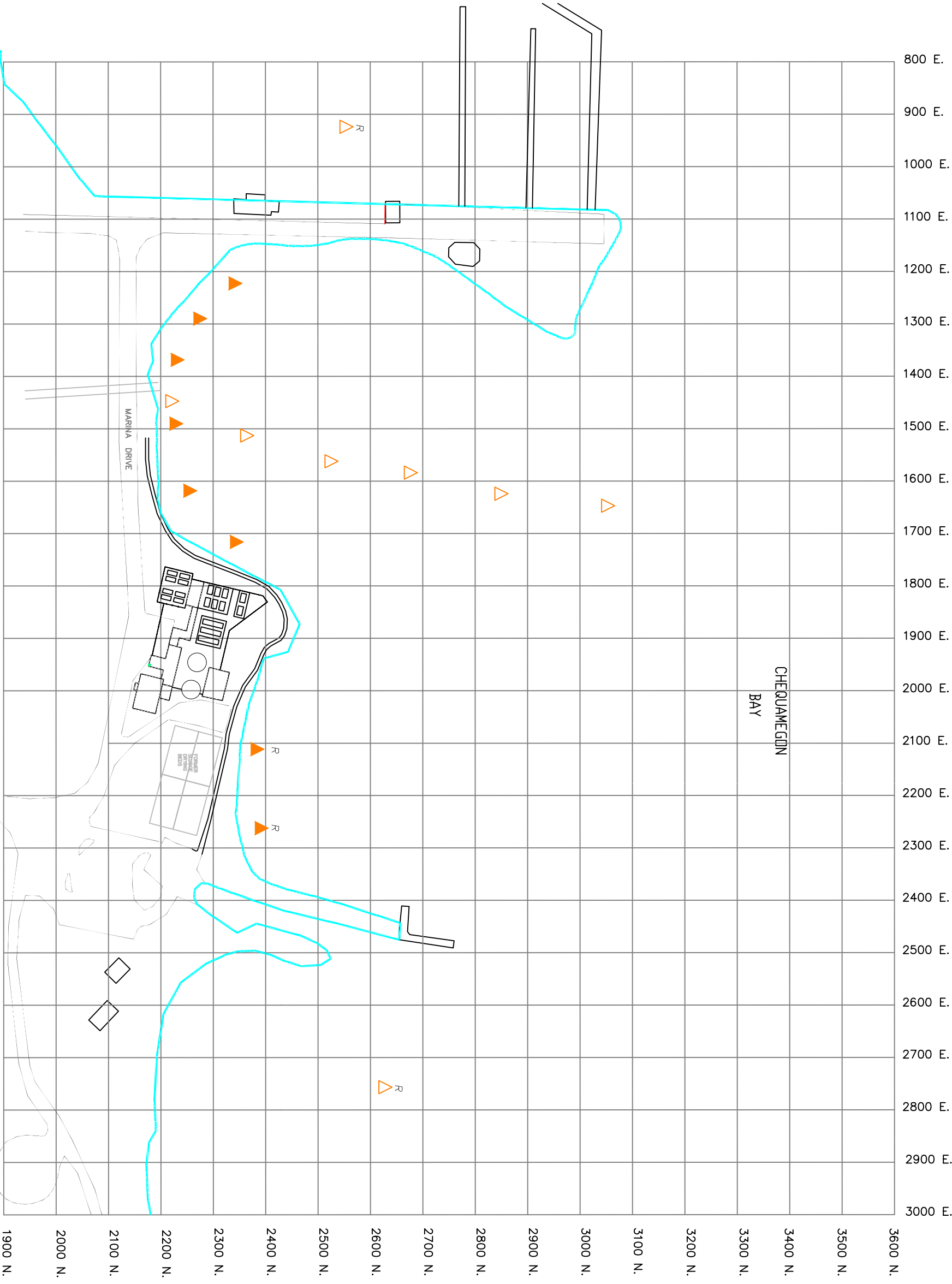


PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN	
TITLE:	R/I/FS WORKPLAN

FIGURE 13A PROPOSED RI/FS TRIAD AND SUPPLEMENTAL SAMPLE LOCATIONS FOR BAY SEDIMENTS			
DRAWN BY: DDZ	SCALE: 1"=200'	PROJ. NO. 25688375	
CHECKED BY: WSB	DATE: 11.OCT.2004	SHEET	14 OF 17
APPROVED BY: DPT			



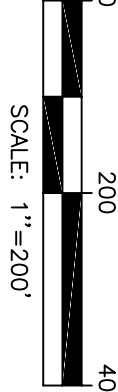
1000 INNOVATION DRIVE, SUITE 600
MILWAUKEE, WISCONSIN 53228
414-431-4100




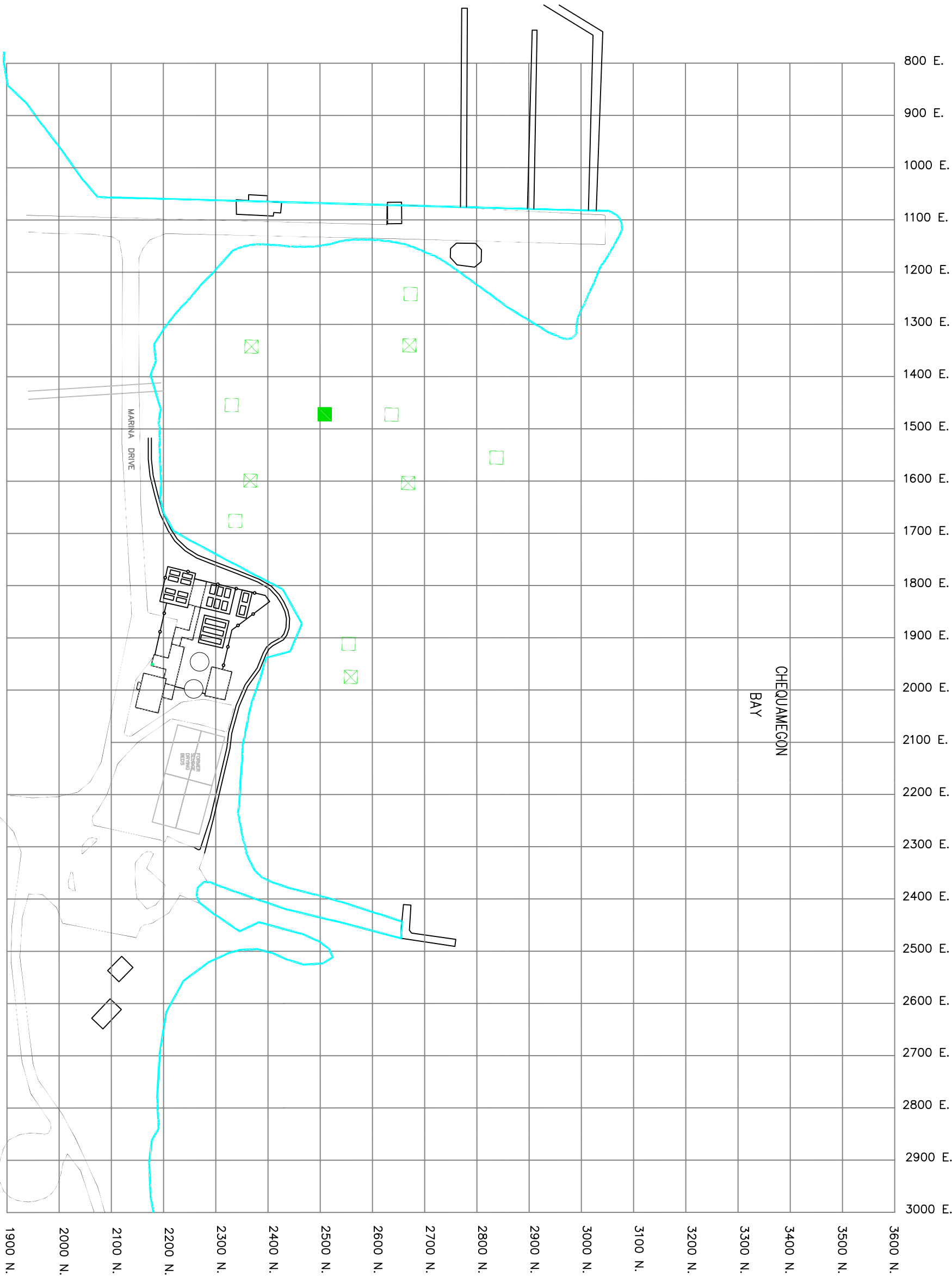
LEGEND

- SURFACE WATER SAMPLE FOR ECOLOGICAL RISK ASSESSMENT (‘R’ DENDOTES REFERENCE STATION)
- SURFACE WATER SAMPLE FOR HUMAN HEALTH RISK ASSESSMENT (‘R’ DENDOTES REFERENCE STATION)

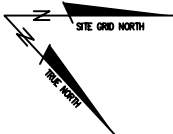
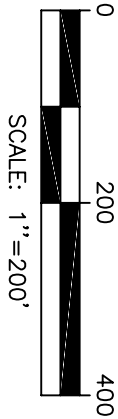
NOTES:
BASE MAP FROM SEH DRAFT FEASIBILITY
STUDY, DATED FEBRUARY 1996.



PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN			
TITLE: R/FS WORKPLAN		FIGURE 13B PROPOSED R/FS SURFACE WATER SAMPLE LOCATIONS FOR BAY SEDIMENTS	
DRAWN BY: DDZ	SCALE: 1"=200'		
CHECKED BY: VSB	DATE: 08.OCT.2004	SHEET	15 OF 17
APPROVED BY: DPT			
 10000 INNOVATION DRIVE, SUITE 500 MILWAUKEE, WISCONSIN 53228 414-831-4100			



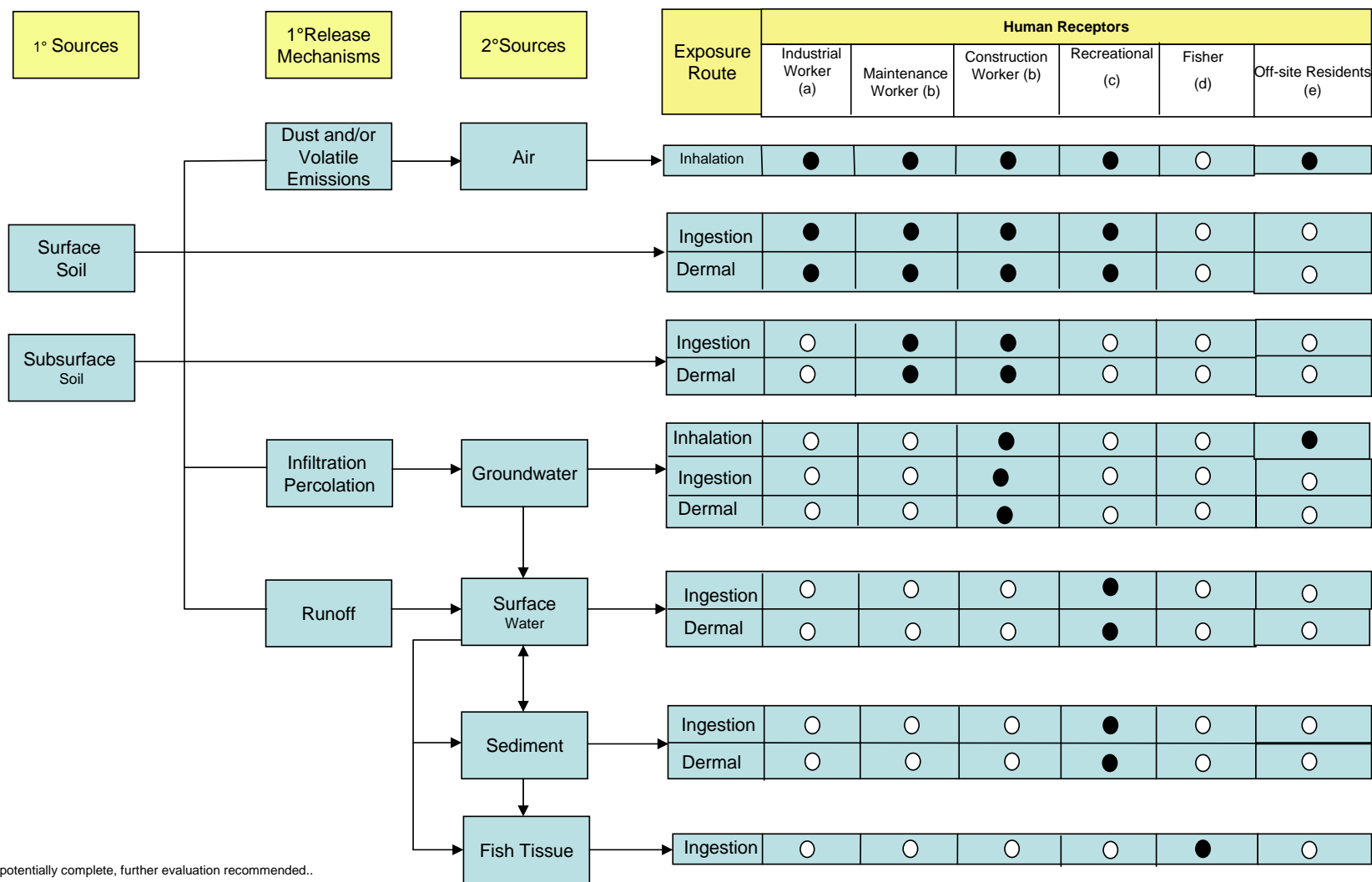
NOTES:
BASE MAP FROM SEH DRAFT FEASIBILITY
STUDY, DATED FEBRUARY 1996.



LEGEND

- SEDIMENT STABILITY SAMPLE
(AGE-DATING CORES)
- SEDIMENT STABILITY SAMPLE
(EROSION TEST CORES)
- SEDIMENT STABILITY SAMPLE
(ACOUSTIC DOPPLER TRIPOD)


PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN			
TITLE: RI/FS WORKPLAN FIGURE 13C PROPOSED RI/FS SEDIMENT STABILITY SAMPLE LOCATIONS FOR BAY SEDIMENTS			
DRAWN BY: DOJZ	SCALE: 1"=200'	PROJ. NO. 25688375	
CHECKED BY: WSB	DATE: 08.OCT.2004	SHEET 16 OF 17	
APPROVED BY: DPT			
URS 1000 INNOVATION DRIVE, SUITE 500 MILWAUKEE, WISCONSIN 53228 414-831-4100			



Key

- Pathway potentially complete, further evaluation recommended..
- Pathway evaluated and found to be incomplete, no further evaluation recommended.

- (a) Operational activities occur in limited areas.
- (b) Maintenance activities include grass mowing or utility repairing. Potential construction exposures may include workers encounter impacted materials in the backfilled ravine or at the Kreher Park.
- (c) Representative of young children (0-6 year of age), older children and adolescents (7-18 years of age) and adults.
- (d) Representative of both recreational and subsistence adult fishers. The results of previous investigations by the WDNR indicate fish tissue do not contain levels of Site-related chemicals that are A health concern.
- (e) Representative of children and adult residents in houses located near the backfilled ravine. No direct exposures to soil (via inhalation of chemicals in ambient air, incidental ingestion of chemicals in soil and dermal contact with chemicals in soil) are expected to occur because the ravine had been backfilled with clean soil.

PROJECT: ASHLAND/NSP LAKEFRONT SITE ASHLAND, WISCONSIN		
TITLE: RI/FS WORKPLAN FIGURE 14 HUMAN HEALTH RISK ASSESSMENT CONCEPTUAL SITE MODEL		
DRAWN BY: DDZ	SCALE:	PROJ. NO. 25688375
CHECKED BY: DPT	DATE: 13.FEB.2004	SHEET 17 OF 17
APPROVED BY: DPT		
 10200 INNOVATION DRIVE, SUITE 500 MILWAUKEE, WISCONSIN 53226 414-831-4100		